CLAIMS

1. Process for dissolving ruthenium deposits that are present on a surface, comprising bringing the said surface into contact with an aqueous solution of perruthenate, with the said aqueous solution having a pH equal to or greater than 12.

2. Process according to claim 1, in which the said aqueous solution has a concentration C in $mol.l^{-1}$ of perruthenate, whereby $0 < C \leq 0.1$.

3. Process according to claim 1, in which the said aqueous solution has a concentration C of 10^{-4} $mol.l^{-1}$.

4. Process according to claims 1 or 2, in which the said aqueous solution has a concentration of OH^- ions of between 0.01 and 6 $mol.l^{-1}$.

5. Process according to claims 1 or 2, in which the said aqueous solution has a concentration of OH^- ions of between 0.03 and 0.6 $mol.l^{-1}$.

6. Process according to claims 1 or 2, in which contact is made at a temperature of between 5 and 50 °C.

7. Process according to claim 1, in which the perruthenate is regenerated *in situ* by injecting a

gaseous regeneration agent into the aqueous solution that is in contact with the said surface.

8. Process according to claim 7, in which the regeneration agent is a mixture of air and ozone, nitrogen and ozone or oxygen and ozone.

9. Process according to claim 7, in which the regeneration agent is injected using an air-lift or bubbling ramps.

10. Process according to claim 7, in which the gases such as excess ozone and RuO_4 that emanate from the aqueous solution during the dissolution process, are recovered and subjected to a scrubbing treatment using a scrubbing solution for these gases.

11. Process according to claim 10, in which the gas scrubbing solution is an aqueous solution comprising between 0.01 and 10 $mol.l^{-1}$ of OH^- ions.

12. Process for decontaminating circuits in nuclear fuel reprocessing plants, in which the said process comprises the implementation of a process according to any of claims 1 to 11.